

**EAST Search History****EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	944	166/285.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/16 10:37
L4	2002	166/286,300,162,177.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/16 10:44
L5	565597	(spiral OR helical OR helix)	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/16 10:44
L6	55	L4 L5	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/16 10:45
L7	25	("2668592"   "2716454"   "3157232"   "3612181").PN. OR ("3727691").URPN.	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/16 11:07
L8	3	L7 (spiral OR helical OR helix)	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/16 11:07
S1	1	("20060000993").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2008/09/04 16:48
S2	1	("5570744").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2008/09/04 16:54
S3	8	("1959368"   "2178846"   "3351136"   "5570744"   "6723158").PN.	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:24
S4	895	166/285.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:26
S7	3	S4 decelerating	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:31
S8	23	S4 spiral	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:31
S9	0	S7 S8	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:31
S10	270	138/142.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:45

S11	0	S10 downhole	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:45
S12	0	S10 wellbore	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:45
S13	0	S12 shoe	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:45
S14	82	"166".clas. spiral valve shoe	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:50
S15	229	"166".clas. (spiral OR helical) valve shoe	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:51
S16	114	"166".clas. (spiral OR helical) valve shoe (latch OR lock)	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 10:51
S17	80	S4 (float ADJ collar)	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:05
S18	2	S17 (anti-rotation)	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:10
S19	0	S17 (axial ADJ (lock OR locking))	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:44
S20	1	S4 (axial ADJ (lock OR locking))	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:44
S21	0	"166".clas. shoe NEAR (axial ADJ (lock OR locking))	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:44
S22	0	"166".clas. (shoe NEAR (axial ADJ (lock OR locking)))	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:44
S23	0	"166".clas. (shoe WITH (axial ADJ (lock OR locking)))	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:44
S24	30	"166".clas. ((axial ADJ (lock OR locking)))	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:45
S25	189	S4 (lock OR locking OR latch)	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:46
S26	5	S4 ((lock OR locking OR latch) NEAR shoe)	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 11:46

S27	2	S4 ((opposite OR opposing) NEAR (helix OR helical OR sprial))	US-PGPUB; USPAT; USOCR	AND	OFF	2008/09/05 14:00
S28	0	("2178846").URPN.	USPAT	AND	OFF	2009/04/13 17:21
S29	635	138/142.ccls. OR 251/126.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2009/04/13 17:23
S30	2	S29 decelerate	US-PGPUB; USPAT; USOCR	AND	OFF	2009/04/13 17:24
S31	106	S29 (sprial OR helical OR helix)	US-PGPUB; USPAT; USOCR	AND	OFF	2009/04/13 17:24
S32	87	"166" clas. insert shoe (spiral OR helix OR helical)	US-PGPUB; USPAT; USOCR	AND	OFF	2009/04/13 17:28
S33	8	("4787457"   "4842066"   "4869323"   "5107927"   "5165476"   "5318119"   "5829526").PN. OR ("6311774").URPN.	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/15 18:39
S34	20	("1801983"   "3014530"   "3557562"   "3637019"   "3726340"   "3901319").PN. OR ("4083406").URPN.	US-PGPUB; USPAT; USOCR	AND	OFF	2009/10/15 18:51

### EAST Search History (Interference)

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10/16/2009 12:18:40 PM

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